

– Curriculum Vitae –
R. T. James McAteer

Personal Details

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Date of Birth:	16 June 1978	Telephone:	+44 (0)2890 245133 ext. 8664
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Postgraduate Education

University: Queen's University Belfast
Degree: Ph.D. (ongoing): Low-frequency Oscillations of the Solar Atmosphere
Started: Oct 2000
Expected completion: Oct. 2003
Supervisors: Prof. F. P. Keenan
Dr. M. Mathioudakis
Examiner: Prof. E. R. Priest

Undergraduate Education

University: Queen's University Belfast
Degree: M.Sci. (1ST CLASS HONS) in Physics with Astrophysics

Awards

- Summer Research Assistantship
 - Awarded by NASA GSFC (July – Sept 2002)
- Co-operative Award in Science and Technology
 - Awarded by QUB for Ph. D. research (Oct 2000 – present)
- Institute of Physics Medal
 - Awarded by IOP for best nationwide A-level physics result (June 1997)

Professional Memberships

- Fellow (Student) of Royal Astronomical Society (FRAS)
- Associate Member of Institute of Physics (AMInstP)

Computer Languages and Systems

- Microsoft Windows and Linux
- IDL (inc SolarSoft Ware (SSW))
- HTML, L^AT_EX

Research Interests - Publications

- **Quiet Sun Chromospheric Network**

Study of multi-wavelength observations of the chromospheric network. Development of image segmentation, Fourier and wavelet analysis techniques to detect correlated intensity oscillations across several optical wavelengths.

–Bloomfield, D.S., M^cAteer, R.T.J., Mathioudakis, M.,
Williams, D.R., Keenan, F.P.

Propagating waves and MHD mode coupling in the Quiet Sun
Astrophysical Journal (2003), submitted

–M^cAteer, R.T.J., Gallagher, P.T., Williams, D.R.,
Mathioudakis, M., Bloomfield, D.S., Phillips, K.J.H., Keenan, F.P.
Observational Evidence for Mode-Coupling in the Chromospheric Network
Astrophysical Journal (2003), 587, 806

–M^cAteer, R.T.J., Gallagher, P.T., Williams, D.R.,
Mathioudakis, M., Phillips, K.J.H., Keenan, F.P.
Long-Period Chromospheric Oscillations in Network Bright Points
Astrophysical Journal (2002), 567, L165

–M^cAteer, R.T.J., Gallagher, P.T., Williams, D.R.,
Mathioudakis, M., Phillips, K.J.H., Keenan, F.P.
Detection of Propagating Waves Throughout the Chromosphere in Network Bright Points
Proc. SOLMAG: Magnetic Coupling of the Solar Atmosphere Euroconference and IAU
Colloquium 188 (2002), ESA-SP 505, 305

- **Quiet Sun TRACE observations**

Extension of previous Fourier analysis of quiet sun data sets into the time-localised domain. This involves the creation of automated wavelet analysis techniques, developed to compare and contrast quiet Sun network and internetwork oscillations in TRACE ultraviolet wavelengths.

–M^cAteer, R.T.J., Gallagher, P.T., Bloomfield, D.S.
Williams, D.R., Mathioudakis, M., Keenan, F.P.

Ultraviolet Oscillations in the Chromosphere of the Quiet Sun
Astrophysical Journal (2003), in press.

- **Active Region Complexity**

Analysis of MDI images of active regions to study the relationship of the flaring potential of an active region to its photospheric magnetic field. This work includes the use of fractal dimension analysis and information theory to study the flaring rate of an active region according to its magnetic classification.

–Ireland, J., Gallagher, P.T., M^cAteer, R.T.J.,
Fractal Dimension of Active Region Magnetic Fields

International Astronomical Union. Symposium no. 219 (2003), 219, 255

–Gallagher, P.T., M^cAteer, R.T.J., Ireland, J.
The Fractal Dimension of Solar Active Regions
Astrophysical Journal (2003), in prep.

- **Max Millennium Program of Solar Flare Research**

Carry out duties as a Max Millennium Chief Observer to study and predict the X-ray flare class potential of the solar disk daily. The most appropriate observing target and plan is sent out daily to co-ordinate observations around the globe.

- **High Cadence Imaging**

Analysis and interpretation of high-cadence coronal data from solar eclipses (Bulgaria 1999 and Zambia 2001), using SECIS (Solar Eclipse Coronal Imaging System) and coordinated soHO/CDS observations. Development of RDI (Rapid Dual Imager), a highly portable, self contained, dual CCD, high cadence imaging system. This work is funded by a Royal Society grant.

– Katsiyannis, A.C., M^cAteer, R.T.J., Gallagher, P.T., Williams, D.R., Mathioudakis, M., Keenan, F.P.

Synchronised High-Cadence Imaging of the Solar Atmosphere

Monthly Notices of the Royal Astronomical Society (2003), in prep.

–Katsiyannis, A.C., Williams, D.R., M^cAteer, R.T.J., Gallagher, P.T., Keenan, F.P., Murtagh, F.

Eclipse observations of high-frequency oscillations in active region coronal loops

Astronomy and Astrophysics (2003), 406, 709

–Williams, D.R., Mathioudakis, M., Gallagher, P.T., Phillips, K.J.H., M^cAteer, R.T.J., Rudawy, P., Keenan, F.P., Katsiyannis, A.C.

An Observational Study of a Magnetoacoustic Wave in the Solar Corona

Monthly Notices of the Royal Astronomical Society (2002), 336, 747

–Williams, D.R., Mathioudakis, M., Gallagher, P.T., Phillips, K.J.H., M^cAteer, R.T.J., Keenan, F.P., Katsiyannis, A.C.

Observations of a high-frequency fast-mode wave in a coronal loop

Proc. SOLMAG: Magnetic Coupling of the Solar Atmosphere Euroconference and IAU Colloquium 188 (2002), ESA-SP 505, 615

–Katsiyannis, A.C., Williams, D.R., M^cAteer, R.T.J., Gallagher, P.T., Mathioudakis, M., Keenan, F.P.

Detections of High-Frequency Oscillations in Solar Active Region Coronal Loops

Proc. SOLMAG: Magnetic Coupling of the Solar Atmosphere Euroconference and IAU Colloquium 188 (2002), ESA-SP 505, 441

- **Flaring Stars**

Wavelet analysis of intensity oscillations in stellar lightcurves. Coronal loop models used to derive temperature, electron density and magnetic field strength of the associated coronal loop.

–Mathioudakis, M., Seiradakis, J.H. Williams, D.R., Avgoloupis, S., Bloomfield, D.S., McAteer, R.T.J.

White-Light Oscillations During a Flare on II Peg

Astronomy and Astrophysics (2003), 403, 1101

Ground-based Observing Experience

- Multi-wavelength / Advanced Stokes Polarimeter observations, Dunn Solar Telescope, May 2003
- Multi-wavelength / Advanced Stokes Polarimeter observations, Dunn Solar Telescope, Oct 2002
- Multi-wavelength / Advanced Stokes Polarimeter observations, Dunn Solar Telescope, July 2002
- Tested RDI at Big Bear Solar Observatory 65-cm reflector, August 2002
- Big Bear Solar Observatory 65-cm reflector, with joint partial support from SOHO/CDS, TRACE and Yohkoh/SXT, August 2001
- Solar Eclipse observation, with the SECIS instrument, Lusaka, Zambia, June 2001

Space-based Observing Experience

- The Solar and Heliospheric Observatory (SOHO)
-including CDS planning, August 2002
- The Transition Region and Coronal Explorer (TRACE)
- The Reuven Ramaty High Energy Solar Spectroscopic Imager (RHESSI)

Conferences / Workshops Attended

- Waves, oscillations and small scale transient events in the solar atmosphere,
SOHO13 conference, Mallorca, 29–4 Oct. 2003
-Presentation: '*An Automated Wavelet Analysis Approach to TRACE Quiet Sun Oscillations*'
- Joint UK Solar Physics / National Astronomy Meeting, Dublin, 7-11 April 2003
-Presentation: '*Wavelet Analysis of the Quiet Sun*'
- Living with a Star Coordinated Data Analysis Workshop, Greenbelt, MD, August 2002
- Magnetic Coupling of the Solar Atmosphere, Euroconference and
IAU Colloquium, Santorini, Greece, 11–15 June 2002
-Presentation: '*Detection of Propagating Waves in Network Bright Points Throughout the Chromosphere*'
- Joint UK Solar Physics / National Astronomy Meeting, Cambridge, April 2001

Professional Referees

Prof. Francis P. Keenan,
Astrophysics and Planetary Science Division,
Department of Pure and Applied Physics,
Queen's University,
Belfast, BT7 1NN,
Northern Ireland.
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Dr. Peter T. Gallagher,
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